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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,670	09/17/2003	Qixu David Chen	50103-531	2476

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Washington, DC 20005-3096

EXAMINER
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RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/663,670

Applicant(s)

CHEN ET AL.

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-18 is/are rejected.
- 7) ☐ Claim(s) 6 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claim 1-22 are pending. Claims 19-22 are withdrawn as being directed to a non-elected invention.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "thin" in claims 2 and 17 is a relative term which renders the claim indefinite. The term "thin" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 4, and 10-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsunuma et al. (US 6602621).

Matsunuma et al. disclose a perpendicular magnetic recording medium having a substrate, an adhesion layer containing Ti, a soft magnetic layer formed from an alloy such as NiFe or FeTaC, a first seedlayer formed from Fe oxide, a second seedlayer formed from Pt having SiN separating the Pt grains, a recording layer, and a C protective layer (Fig 1; col. 11, lines 26-27; col. 12, lines 2-5; col. 32, lines 14-67). The reference teaches that the soft magnetic layer has a surface roughness of 0.2 nm (col. 11, lines 33-36).

***Claim Rejections - 35 USC § 102/103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 7-9, 15-16, and 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsunuma et al. (US 6602621) as applied above.

With respect to claims 5 and 7-8, the disclosure of Matsunuma et al., as detailed above, is silent with respect to the claimed crystalline orientation of the hcp magnetic layer. However, it is the Examiner's contention that the structure taught by Matsunuma et al. would inherently satisfy this feature of the claimed invention by virtue of the fact that the reference teaches the same

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structure using the same materials as disclosed in the present invention. Thus, one of ordinary skill in the art would expect media having substantially the same structures and compositions to exhibit the same crystallographic properties. It has been held that where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC § 102 or on prima facie obviousness under 35 USC § 103, jointly or alternatively. *In re Best, Bolton, and Shaw*, 195 USPQ 430. (CCPA 1977).

With respect to claims 9, 15-16 and 18, a layer in addition to those detailed above is set forth in these claims. Specifically, the claims require the presence of an amorphous or crystalline seedlayer between the soft magnetic layer and the overlying interlayer structure. Matsunuma et al. meets limitation as follows:

Substrate/soft mag./Fe oxide seed/Pd-SiN seed/Co-Pd superlattice structure wherein the Co-Pd superlattice has the structure  $(\text{Co/Pd/Co.Pd})_n$ . The Fe oxide seedlayer corresponds to the claimed "seedlayer", the Pd-SiN seedlayer corresponds to the 1<sup>st</sup> interlayer, and the first Pd layer of the superlattice structure corresponds to the claimed 2<sup>nd</sup> interlayer.

It is noted that the process limitations in the claims have been considered but they do not appear to patentably distinguish the present claims over the prior art. That is, they do not add any additional structural features to the claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show the same process of making. *In re Brown*, 173 USPQ 685 and *In re Fessmann*, 180 USPQ 324.

***Claim Rejections - 35 USC § 103***

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunuma et al. as applied above, in view of Carey et al. (US 6835475).

Matsunuma et al., as detailed above, fails to teach the use of FeCoB for the soft magnetic layer taught therein. However, the reference teaches several examples of suitable materials including NiFe.

Carey et al. teach that NiFe and FeCoB are functionally equivalent for use as soft magnetic recording layers in perpendicular recording media (see col. 5, line 64 to col. 6, line 11).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a FeCoB alloy for the NiFe alloy taught by Matsunuma et al. in view of the functional equivalence of the two materials.

***Allowable Subject Matter***

9. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The closest prior art to Matsunuma et al. fails to teach the claimed structures having the specified first and second interlayer materials.

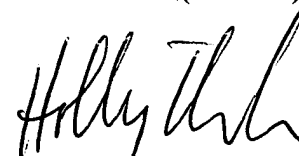
***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6677061, US 2004/0038082 and US 6699600 are cited as art of interest.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

April 11, 2005